5.16 PUBLIC HEALTH

This section presents the methodology and results of a human health risk assessment performed to assess potential public health impacts associated with airborne emissions from the construction and routine operation of the El Segundo Power Redevelopment (ESPR) project. The analysis evaluated potential emissions of "air toxic" compounds from the turbine stacks. Air toxics are compounds for which ambient air quality standards have not been established, but are known or suspected to cause short-term (acute) and/or long-term (chronic or carcinogenic) adverse health effects. "Criteria Pollutants" (compounds with ambient air quality standards) are addressed in Section 5.2 (Air Quality) and summarized in Section 5.16.2.5. Potential exposures due to upset conditions are addressed in Section 5.15 (Hazardous Materials Handling). Also of concern with respect to public health are potential exposures to electric and magnetic fields (EMF). The transmission facilities and their routes are discussed in Section 3.6 (Facility Description) along with a discussion of the associated electric and magnetic field strengths. A discussion of transmission line safety and nuisance is presented in section 5.18 (Transmission Line Safety and Nuisance. Potential public health impacts from electromagnetic exposure are discussed in Section 5.16.2.

Air is the dominant pathway for public exposure to chemical substances that will be released by the project. Emissions to the air will consist of combustion by-products produced in the gas turbines. Initial health risk modeling was performed only for the direct inhalation exposure pathway, so as to identify points of maximum individual cancer risk and non-cancer health risk impacts. Potential health risks from multiple exposure pathways, including inhalation, were addressed for identified sensitive receptors and at the points of maximum predicted inhalation exposure. The air pathway and multipathway portions of the risk assessment were conducted in accordance with guidance established by the California Air Pollution Control Officers Association (CAPCOA).

5.16.1 Affected Environment

For the purposes of the air quality and public health exposure assessments, it was assumed that the ESPR facility turbine stacks will exhaust combustion gases at approximately 250 feet (76 meters) above grade elevation (at 10 feet [3 meters]). Topographical features within a 10-mile radius are equal to or less than the elevation of the assumed stack exhaust exit point (stack height plus grade elevation; 260 feet or 79 meters) and are shown in Figure 5.16-1.

Figure 5.16-2 shows the sensitive receptor locations within a 2-mile radius of the proposed site. Sensitive receptors are defined as groups of individuals that may be more susceptible to health risks due to chemical exposure. Schools (public and private), day care facilities, convalescent homes, emergency response agencies, long-term health care providers, and hospitals are typically of particular concern.

5.16.2 Environmental Consequences

5.16.2.1 Public Health Risks – Site Preparation and Construction Phase

No significant public health effects are expected during the site preparation and construction phase. Strict construction practices incorporating safety and compliance with all applicable laws, ordinances, regulations, and standards (LORS) will be followed (see Section 5.16.5). Furthermore, mitigation measures to reduce construction impacts will be implemented as described in Section 5.2 (Air Quality).

Temporary emissions from construction-related activities are discussed in Section 5.2. Ambient air modeling for PM_{10}, CO, and NO_x was performed as described in Section 5.2.5.8. Construction-related emissions are temporary and localized, resulting in no long-term impacts to the public. All predicted maximum concentrations occurred at locations along the immediate property boundary.

Small quantities of hazardous waste may be generated during the construction phase. Hazardous waste management plans will be in place so that the potential for public exposure will be minimal. Refer to Section 5.14 (Waste Management) for more information.

5.16.2.2 Public Health Risks - Operational Impacts

The methods used to assess potential human health risks from routine operations are consistent with those presented in the document prepared by the CAPCOA, *Air Toxics "Hot Spots" Program: Revised 1992 Risk Assessment Guidelines* (CAPCOA, 1993). The CAPCOA guidelines were developed to provide procedures for use in the preparation of health risk assessments required under the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) (Health and Safety Code Section 44360 et seq.). The "Hot Spots" law established a statewide program for the inventory of air toxics emissions from individual facilities as well as requirements for risk assessment and the public notification of potential health risks.

The health risk assessment for this project was conducted in three steps: First, a hazard identification was performed to determine pollutants of concern associated with the turbine, boiler, and fire pump engine operations. Second, an exposure assessment was performed that included toxic air contaminant emission calculations and the simulation of pollutant transport using atmospheric dispersion modeling. Third, a risk characterization was performed analyzing potential health risks from these calculated exposures, which included identifying

the location of maximum cancer and non-cancer health risks. Exposures were estimated initially for inhalation only. Subsequent to identifying the locations of maximum impact, a multipathway analysis was performed for the maximum impact and sensitive receptor locations. The multipathway analysis included the inhalation pathway, dermal (skin) absorption, ingestion of soil with deposited pollutants, consumption of meat produced in the local area, and exposure to pollutants potentially in mothers' milk. Consideration of these pathways are consistent with risk screening procedures contained in the CAPCOA guidelines (CAPCOA, 1993).

5.16.2.2.1 Hazard Identification. The hazard identification involved an evaluation of turbine operations to determine if there are particular substances that will be used or may be generated which may cause health effects if released to the air. The chemicals evaluated in this analysis were identified from the CAPCOA guidelines (CAPCOA, 1993), the California Office of Environmental Health Hazard Assessment (OEHHA) *Technical Support Document for Describing Available Cancer Potency Factors* (Cal-EPA, 1999a), OEHHA's *The Determination of Acute Reference Exposure Levels for Airborne Toxicants* (Cal-EPA, 2000a), and OEHHA's *The Determination of Chronic Reference Exposure Levels for Airborne Toxicants* (Cal-EPA, 2000b).

Tables 5.16-1, 5.16-2, and 5.16-3 present lists of substances that may be emitted from the turbines, boilers, and fire pump engine (excluding pollutants with established ambient air quality standards which are addressed in Section 5.2) along with their toxic effects and toxicological endpoints.

Section 5.15, Hazardous Material Handling, provides more detailed information on chemicals stored and used on site and the potential impacts associated with their use and storage. A discussion of the consequences of a potential accidental release of hazardous materials is also included in Section 5.15.

5.16.2.2.2 Exposure Assessment Methods.

Significance Criteria.

Cancer Risk. Cancer risk is the probability or chance of contracting cancer over a human life span (assumed to be 70 years). It is not assumed that carcinogens have a threshold below which there would be no human health impact. In other words, any exposure to a carcinogen is assumed to have some probability of causing cancer; the lower the exposure the lower the

TABLE 5.16-1

NON-CRITERIA POLLUTANT EMISSIONS FROM THE GAS TURBINES

Compound	Calculated Emissions, Each Turbine/HRSG			Emission Rates for Modeling, Each Turbine/HRSG	
	Emission Factor, lb/MMscf[1]	Emissions, lb/hr[2]	Emissions, tpy[3]	One-hour Average, g/s	Annual Average, g/s
Acetaldehyde*	6.86E-2	0.168	0.59	2.11E-2	1.71E-2
Acrolein *	6.43E-3[4]	1.57E-2	5.57E-2	1.98E-3	1.60E-3
Ammonia	--	16.9[5]	74.1[6]	2.13	2.13
Benzene*	1.36E-2	3.32E-2	0.12	4.19E-3	3.39E-3
1,3-Butadiene*	1.27E-4	3.10E-4	1.10E-2	3.91E-5	3.17E-5
Ethylbenzene*	1.79E-2	4.38E-2	0.16	5.51E-3	4.46E-3
Formaldehyde*	1.10E-1	0.269	0.95	3.39E-2	2.74E-2
Hexane*	2.59E-1	0.633	2.25	7.98E-2	6.46E-2
Naphthalene*	1.66E-3	4.05E-3	1.44E-2	5.11E-4	4.14E-4
PAHs	6.60E-4	1.61E-3	5.72E-3	2.03E-4	1.65E-4
Propylene	7.70E-1	1.88	6.68	2.37E-1	1.92E-1
Propylene Oxide*	4.78E-2	0.117	0.41	1.47E-2	1.19E-2
Toluene*	7.10E-2	0.174	0.62	2.19E-2	1.77E-2
Xylene*	2.61E-2	6.38E-2	0.23	8.04E-3	6.51E-3
Total HAPs, two turbines			10.8		

Notes: * indicates Hazardous Air Pollutant (HAP).

1. Emission factors from CATEF database, except as noted.
2. Based on maximum hourly gas turbine fuel use of 2.44 MMscf/hr.
3. Based on maximum annual gas turbine fuel use of 17,338.9 MMscf/yr.
4. A review of the CATEF database showed that only one of the gas turbines tested was an engine comparable to the units proposed for the project. The emission factor is the average of three test results for this unit.
5. Maximum hourly NH_3 emissions based on 5 ppm ammonia slip from SCR, 100% load, 83º F operating case, with a duct burner.
6. Maximum annual NH_3 emissions based on maximum hourly emission rate and 8760 hours per year of operation (including startup periods).

TABLE 5.16-2

NON-CRITERIA POLLUTANT EMISSIONS FROM THE BOILERS (FUTURE OPERATION)

Compound	Calculated Emissions, Each Boiler			Emission Rates for Modeling, Each Boiler	
	Emission Factor, lb/MMscf[1]	Emissions, lb/hr[2]	Emissions tpy[3]	One-hour Average, g/s	Annual Average, g/s
Acetaldehyde*	8.90E-3	2.98E-2	0.13	3.76E-3	3.76E-3
Acrolein *	8.00E-4	2.68E-3	1.17E-2	3.38E-4	3.38E-4
Ammonia	--	17.3[4]	75.8[5]	2.18	2.18
Benzene*	4.31E-3	1.44E-2	6.32E-2	1.82E-3	1.82E-3
1,3-Butadiene*	--	--	--	--	--
Ethylbenzene*	2.00E-2	6.70E-2	0.29	8.44E-3	8.44E-3
Formaldehyde*	2.21E-1	0.74	3.24	9.33E-2	9.33E-2
Hexane*	1.30E-3	4.36E-3	1.91E-2	5.49E-4	5.49E-4
Naphthalene*	3.00E-4	1.01E-3	4.40E-3	1.27E-4	1.27E-4
PAHs	4.00E-4	1.34E-3	5.87E-3	1.69E-4	1.69E-4
Propylene	1.55E-1	0.52	2.27	6.54E-2	6.54E-2
Propylene Oxide*	--	--	--	--	--
Toluene*	7.80E-3	2.61E-2	0.11	3.29E-3	3.29E-3
Xylene*	5.80E-3	1.94E-2	8.51E-2	2.45E-3	2.45E-3

Notes: * indicates Hazardous Air Pollutant (HAP).

1. Emission factors from Ventura County APCD and CATEF databases, except as noted.
2. Based on maximum hourly gas turbine fuel use of 3.35 MMscf/hr.
3. Based on maximum annual gas turbine fuel use of 29,346 MMscf/yr.
4. Maximum hourly NH_3 emissions based on April 1996 source test of Unit 4.
5. Maximum annual NH_3 emissions based on maximum hourly emission rate and 8760 hours per year of boiler operation.

TABLE 5.16-3

NON-CRITERIA POLLUTANT EMISSIONS FOR FIRE PUMP ENGINE

Compound	Emissions		Emission Rates for Modeling	
	Maximum Hourly lb/hr[1]	Annual tpy[2]	One-hour Average, g/s	Annual Average, g/s
Diesel exhaust particulate	1.02E-2	1.02E-3	1.29E-3	2.94E-5

1. Based on a 30-minute engine test at 50 percent load.
2. Based on 200 hours per year of operation.

cancer risk (i.e., a linear, no-threshold model). Under various state and local regulations, an incremental cancer risk of 10 in a million due to a project is considered to be a significant impact on public health. For example, the 10-in-a-million risk level is used by the Air Toxics "Hot Spots" (AB 2588) program and California's Proposition 65 as the public notification level for air toxic emissions from existing sources. The South Coast Air Quality Management District (SCAQMD) allows for an incremental risk of 10 in one million in permitting new sources provided toxics best available control technology (T-BACT) is employed, which for combustion sources is generally considered to be the firing of natural gas. For assessing the significance of potential risks from ESPR facility emissions, a significant impact criteria for lifetime incremental cancer risk of 10-in-a-million is appropriate. The CEC generally does not consider potential mitigation measures if calculated maximum cancer risks are less than 1 in one million.

The lifetime risk of cancer from all causes combined is about 250,000 in a million in the United States today (about 25%). Environmental and occupational exposures are generally thought to be responsible for a small portion of this background risk. However, environmental and occupational carcinogens are a principal focus of regulatory policy, because they are often involuntary and in principle can be reduced by regulatory initiatives. The project's maximum incremental risk will not appreciably change the lifetime risk at receptors in the area, as discussed in Section 5.16.2.3.

Non-Cancer Risk. Non-cancer health effects can be either chronic or acute. In determining potential non-cancer health risks (chronic and acute) from air toxics, it is assumed that there is a dose of the chemical of concern below which there would be no

impact on human health. In other words, there is a threshold below which no effects occur. The air concentration corresponding to this dose is called the reference exposure level (REL), and for the non-inhalation environmental pathways, the threshold dose is typically expressed in terms of the reference dose (RfD), which is an allowable daily dose per body weight (mg/kg-day). Non-cancer health risk is measured in terms of a hazard quotient, which is the calculated exposure of each contaminant divided by its REL. Hazard quotients for those pollutants that affect the same target organ are typically summed, and the resulting totals expressed as hazard indices for each organ system. A hazard index of less than 1.0 is considered to be an insignificant health risk. RELs used in the hazard index calculations were those published in the CAPCOA AB2588 Risk Assessment Guidelines (CAPCOA, 1993), as updated in February 2000 by OEHHA in *The Determination of Acute Reference Exposure levels for Airborne Toxicants* (Cal-EPA, 2000a).

Chronic toxicity is defined as adverse health effects from prolonged chemical exposure, caused by chemicals accumulating in the body. Since chemical accumulation to toxic levels typically occurs slowly, symptoms of chronic effects usually do not appear until long after exposure commences. The lowest no-effect chronic exposure levels for a non-carcinogenic air toxic is the chronic REL or RfD. Below these thresholds, the body is capable of eliminating or detoxifying the chemical rapidly enough to prevent its accumulation. The chronic hazard index was calculated using the hazard quotients calculated with annual concentrations.

Acute toxicity is defined as adverse health effects caused by a brief chemical exposure of no more than 24 hours. For most chemicals, the air concentration required to produce acute effects is higher than levels required to produce chronic effects because the duration of exposure is shorter. Acute toxicity is predominantly manifested in the upper respiratory system at threshold exposures. One-hour average concentrations are divided by acute RELs to obtain a hazard index for health effects caused by relatively high, short-term exposure to air toxics.

Air Toxic Emissions. The potential emissions of air toxic compounds from the turbines were assessed using air toxic emission factors for natural-gas-fired turbines contained in the *California Air Toxics Emission Factor Database* (CATEF), Version 1.2, April 1996, compiled by the California Air Resources Board (CARB, 1996) from source test data collected under the AB 2588 Air Toxics “Hot Spots” Program.

Consistent with modeling performed for criteria pollutants (Section 5.2), annual emissions were calculated assuming operation of two turbines and boilers simultaneously at fuel input rates for 100 percent load at 83°F assuming 8,760 hours of operation per year. These were

used as annual average emissions estimates for the calculation of carcinogenic and chronic non-cancer health effects. The emission rates for the fire pump engine assume a 50 percent load and 200 hours of operation per year. Emission rates for the turbines, boilers, and fire pump engine are summarized in Tables 5.16-2, 5.16-3, and 5.16.4, respectively. These emission rates assume selective catalytic reduction (SCR) air pollution control technology (i.e., ammonia slip) for the gas turbines.

Dispersion Modeling Methodology. Atmospheric dispersion modeling was performed to estimate offsite, ground-level concentrations of toxic air contaminants that may be emitted due to turbine operations. Modeling methodologies follow those discussed for the refined modeling analysis in Section 5.2. The EPA-approved ISCST3 model was used to estimate these ground-level concentrations in all terrain settings based on one year (1981) of hourly meteorological data collected in Costa Mesa, located approximately 7 kilometers north of the project site. Upper air data used for daily mixing heights were supplied by the SCAQMD. The SCAQMD requested that these meteorological data be used in the health risk assessment analysis (SCAQMD, 2000).

The initial modeling analysis was performed to identify the locations of maximum individual cancer risk and maximum chronic and acute hazard indices from exposures through inhalation. The cancer risk for an inhaled air toxic is estimated by multiplying the exposure concentration (in micrograms per cubic meter [$\mu g/m^3$]) by its cancer "unit risk factor", which is the estimated cancer risk for a continuous exposure to 1 $\mu g/m^3$ of the substance over a specified averaging time, usually assumed as 70 years in a lifetime cancer risk estimate. In the initial modeling for cancer risk, the turbine stack emissions were modeled as the sum of the annual concentrations for each pollutant ($\mu g/m^3$) (see Table 5.16-4) multiplied by its pollutant-specific cancer unit risk factor. This approach yielded a direct model result in terms of inhalation cancer risk, not ground-level concentration, for all emitted pollutants. The cancer unit risk factors were obtained from the updated Office of Environmental Health Hazard Assessment (OEHHA) *Technical Support Document for Describing Available Cancer Potency Factors* (Cal-EPA, 1999a). The cancer unit risk factors in this document were recently released for use in AB 2588 health risk assessments. Appendix I summarizes cancer unit risk factors and modeling emission inputs for calculating cancer risk through inhalation.

For the chronic non-cancer health effects, the inhalation model input was based on a ratio of annual concentrations ($\mu g/m^3$) and pollutant-specific chronic RELs. Similarly, the acute non-cancer health risk input was based on a ratio of the maximum hourly concentrations ($\mu g/m^3$) (Table 5.16-4) and the acute RELs for each pollutant. This approach yields a direct model result in terms of chronic and acute hazard indices. Chronic REL updates have been finalized

TABLE 5.16-4

ESPR HEALTH RISK ASSESSMENT
EMISSIONS USED IN THE ACE MODELING

	Maximum Hourly Emissions			Annual Emissions		
Pollutant	**Turbine 1 (g/s)**	**Turbine 2 (g/s)**	**Turbine 3 (g/s)**	**Turbine 1 (g/s)**	**Turbine 2 (g/s)**	**Turbine 3 (g/s)**
Acetaldehyde	1.42E-02	1.42E-02	1.42E-02	1.38E-02	1.38E-02	1.38E-02
Acrolein	4.91E-03	4.91E-03	4.91E-03	4.77E-03	4.77E-03	4.77E-03
Ammonia	3.40E+00	3.40E+00	3.40E+00	3.33E+00	3.33E+00	3.33E+00
Benzene	2.82E-03	2.82E-03	2.82E-03	2.74E-03	2.74E-03	2.74E-03
1,3-Butadiene	2.63E-05	2.63E-05	2.63E-05	2.56E-05	2.56E-05	2.56E-05
Ethylbenzene[1]	3.71E-03	3.71E-03	3.71E-03	3.60E-03	3.60E-03	3.60E-03
Formaldehyde	2.28E-02	2.28E-02	2.28E-02	2.21E-02	2.21E-02	2.21E-02
Hexane[1]	5.37E-02	5.37E-02	5.37E-02	5.21E-02	5.21E-02	5.21E-02
Naphthalene	3.44E-04	3.44E-04	3.44E-04	3.34E-04	3.34E-04	3.34E-04
PAHs	1.37E-04	1.37E-04	1.37E-04	1.33E-04	1.33E-04	1.33E-04
Propylene Oxides	9.91E-03	9.91E-03	9.91E-03	9.62E-03	9.62E-03	9.62E-03
Toluene	1.47E-02	1.47E-02	1.47E-02	1.43E-02	1.43E-02	1.43E-02
Xylenes	5.41E-03	5.41E-03	5.41E-03	5.25E-03	5.25E-03	5.25E-03

[1] AB2588 health risk assessment guidelines do not identify any unit risk factors or reference exposure levels for these chemicals. Therefore, they were not included in health risk calculations.

by OEHHA for most pollutants (Cal-EPA, 2000b) and were used in this analysis. For acute RELs, the updated values published by OEHHA were used (Cal-EPA, 2000a), except for acrolein and formaldehyde. For these compounds, the updated RELs are based on eye irritation. Consistent with recent CARB guidance on power plant siting (CARB, 1999) which states that acute health effects should be based on inhalation only, acute RELs from the CAPCOA guidelines (CAPCOA, 1993) were used for acrolein and formaldehyde since these were based on respiratory irritation. Appendix I summarizes chronic and acute non-cancer RELs and modeling emission inputs. To identify the points of maximum impact, a multi-scale grid of receptors was used. Near the proposed ESPR facility site, receptors were placed along the property boundary at 25-meter increments. Additional receptors were placed in 100-meter increments to a distance of approximately 1 kilometer. Receptors were placed at 250-meter intervals out to approximately 5 kilometers, and at 500-meter spacing to a distance of approximately 10 kilometers. A receptor grid at 50-meter increments was used to locate

the maximum cancer and non-cancer impact points. Other potential environmental pathways are typically considered if maximum potential cancer risks from the screening-level analysis exceed 1 in one million; that is, there is a potential "zone of impact" per CAPCOA Guidelines (1993). Appendix I provides the detailed HRA study conducted for this project and provides the input and output files for the ISCST3 dispersion modeling and HRA health risk runs.

5.16.2.2.3 Risk Characterization. Carcinogenic risks and potential chronic and acute non-cancer health effects were assessed using the dispersion modeling described above and numerical values of toxicity recommended in the OEHHA technical support document on cancer potency factors (Cal-EPA, 1999a) and the OEHHA updates on chronic and acute RELs (Cal-EPA, 2000a&b). The environmental pathways analyzed included the following screening-level pathways as recommended in the CAPCOA Guidelines: inhalation, dermal absorption (skin), soil ingestion, and exposure through mothers' milk. Other potential environmental pathways are typically considered if maximum potential cancer risks from the screening-level analysis exceed 1 in one million, that is, there is a potential "zone of impact" per CAPCOA Guidelines.

The chief exposure assumption is one of continuous exposure (at maximum emission rates) over a 70-year period at each identified receptor location. When combined with EPA-approved dispersion modeling methodologies, the use of OEHHA cancer potency factors and OEHHA and CAPCOA RELs/RfDs, this assumption provides an upper bound estimate of the true risks. That is, the actual risks are not expected to be any higher than the predicted risks and are likely substantially lower. A discussion of uncertainty factors is presented in Section 5.16.2.4.

5.16.2.3 Study Results

5.16.2.3.1 Estimated Cancer Risks. Table 5.16-5 presents the estimated lifetime cancer risk at the maximum impact point attributable to all carcinogenic contaminants from routine operations. The maximum incremental lifetime cancer risk was calculated to be approximately 0.94 in one million at a location approximately 2.1 kilometers east-southeast of the proposed project. This calculated cancer risk is below the significance criterion of 10-in-1-million.

5.16.2.3.2 Estimated Non-Cancer Health Effects. Table 5.16-5 shows that the calculated chronic non-cancer hazard index at the maximum impact location attributable to the turbine emissions was calculated as 0.02 for all toxic endpoints. For assessing chronic non-cancer health effects, calculated exposures were based on annual-average dispersion modeling

results. Table 5.16-5 also shows a calculated acute hazard index of 0.01 at the maximum impact location. Acute exposures were based on the highest predicted 1-hour-average concentrations. The maximum chronic and acute non-cancer impacts were predicted at the same location as the maximum predicted cancer risk. Therefore, predicted non-cancer hazard indices at all receptors are below the significance criteria of 1.0; thus the project should have insignificant non-cancer health effects based on regulatory guidelines.

TABLE 5.16-5

HEALTH RISK ASSESSMENT RESULTS

Maximum Cancer Risk[1]	0.94 in one million
Maximum Chronic Hazard Index[1]	0.02
Maximum Acute Hazard Index	0.01

[1] Average value at maximum impact location calculated over one year (1981) of meteorological conditions.

5.16.2.4 Uncertainties in the Analysis

Predictions of future health risks related to the proposed project entail substantial uncertainties because of gaps in scientific knowledge in the practice of risk assessment, as well as the need to simplify some aspects of the process for a manageable computational effort. There are model and data uncertainties with respect to the assumed emissions, dispersion modeling and toxicological factors, as well as uncertainties with respect to the characteristics of the potentially exposed population. For example, possible exposure scenarios include that a person may be assumed to reside in one location for the average period of U.S. residency (about 9 years), or for the 90th percentile of residency (about 30 years) or for an entire lifetime (about 70 years); and that exposure may be assumed at the highest modeled concentration, or some average, or a modestly high concentration representative of the exposed population.

Because risk assessments are often performed to set some regulatory limit on exposure in order to protect the public health, the assumptions of risk assessment have tended to more likely overestimate risk rather than underestimate it. The risk assessment methodology described above followed the CAPCOA *AB2588 Risk Assessment Guidelines* (CAPCOA, 1993), which was designed by regulators to more likely overestimate than underestimate

health risks. The following discussion provides qualitative assessments of the uncertainties and variabilities in the major areas of an air toxics health risk assessment.

5.16.2.4.1 Emissions. It is possible that the emission factor estimates for the gas turbines obtained from the CATEF database are in error due to the limited source test data used to derive these factors. However, for both the 1-hour and annual averaging periods, it was assumed that both gas turbines operate at maximum load conditions. Also, the annual averaging period used maximum operation for 8,760 hours per year. Under actual operations, the hours of operation and typical heat input rates will be lower. The chemicals modeled were those with toxicity criteria in the CAPCOA risk assessment guidelines, a list that is considered to be reasonably representative of commonly encountered air toxics.

5.16.2.4.2 Air Dispersion Modeling. In general, EPA-approved dispersion models, such as ISCST3, tend to over-predict concentrations rather than under-predict. For example, not all chemical emissions are assumed to be transformed in the atmosphere. For certain pollutants, conversion may occur with sufficient speed to reduce concentrations from the conservative model predictions. Moreover, these models use assumptions about plume dispersion that tend to over-predict concentrations.

5.16.2.4.3 Exposure Assessment. The most important uncertainties related to exposure concern the definitions of exposed populations and their exposure characteristics. The choice of a maximally exposed individual (MEI) is very conservative in the sense that no real person is likely to spend 24 hours a day, 365 days a year over a 70-year period at exactly the point of highest toxicity-weighted annual average air concentration. The greatest true exposure is likely to be at least 10 times lower than that calculated using the MEI assumption.

5.16.2.4.4 Toxicity Assessment. The final area of uncertainty is in the use of toxicity data in risk estimation. Estimates of toxicity for the health risk assessment were obtained from the OEHHA *Technical Support Document for Describing Available Cancer Potency Factors* (Cal-EPA, 1999a), OEHHA's *The Determination of Acute Reference Exposure Levels for Airborne Toxicants* (Cal-EPA, 2000a) and OEHHA's *The Determination of Chronic Reference Exposure Levels for Airborne Toxicants* (Cal-EPA, 2000b), which are among the most conservative compilations of toxicity information. Toxicity estimates are derived either from observations in humans or from projections derived from experiments with laboratory animals. Human data are obviously more relevant for health risk assessments, but are often uncertain because of the difficulty in estimating exposures associated with the health effect of interest, insufficient numbers of people studied, relatively high occupational exposures (the source of most human data) which must be extrapolated to low environmental exposures, or because the population studied being more or less susceptible than the population as a whole.

Cancer risk coefficients from human data are typically considered best estimates and are applied without safety factors. Cancer risk is typically considered proportional to pollutant concentration at any level of exposure (i.e., a linear, no-threshold model), which is conservative at low environmental doses. For non-cancer effects, the lowest exposure known to cause effects in humans is usually divided by uncertainty or safety factors to account for variations in susceptibility and other factors. When toxicity estimates are derived from animal data, they usually involve extra safety factors to account for possibly greater sensitivity in humans, and the less-than-human-lifetime observations in animals. Overall, the toxicity assumptions and criteria used in the proposed project's risk assessment are biased toward overestimating risk. The amount of the bias is unknown, but could be substantial.

5.16.2.5 Criteria Pollutants

Four criteria pollutants were modeled and evaluated for their impacts on air quality and human health (see Section 5.2). Modeling of nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), and particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}) indicates that health impacts of criteria pollutants are not significant. Maximum predicted concentrations of the criteria pollutants were compared with National and California Ambient Air Quality Standards (NAAQS/ CAAQS), which are health-based levels that serve as inhalation reference doses. With the exception of PM_{10} (which already exceeds the CAAQS), the NAAQS/CAAQS are not exceeded. Therefore, significant adverse health effects are not anticipated.

5.16.2.6 Public Health Risks - Chemicals Stored and Used on Site

The SCR air pollution control system would involve the storage of aqueous ammonia in amounts exceeding the TPQ for the California Accidental Release Prevention Program (CalARP). This would be the only chemical that is considered to be an acutely hazardous material stored and used on site in amounts exceeding TPQs, and thus subject to Risk Management Plan (RMP) requirements under the CalARP regulations. Accidental releases of ammonia have the potential to adversely affect public health. Refer to Section 5.15 (Hazardous Materials Handling) for more information and an assessment of potential offsite consequences.

The Applicant will coordinate with local emergency response units by: 1) providing them with copies of the plant site Emergency Response Plan; 2) conducting plant site tours to point out the location of hazardous materials and safety equipment; and 3) encouraging participation in annual emergency response drills.

5.16.2.7 Summary of Public Health Risk Impacts

Results from an air toxics risk assessment based on emissions modeling indicate that there would be no significant incremental public health risks from the construction or operation of the ESPR facility. Results from criteria pollutant modeling for routine operations indicate that potential ambient concentrations of NO_2, CO, SO_2, and PM_{10} meet federal requirements that have been established to protect public health, including the more sensitive members of the population.

5.16.2.8 Electromagnetic Field Exposure

Section 5.18 discusses transmission line safety and nuisance, focusing on aviation safety, audible noise and radio/television interference, electric shock, and potential effects on cardiac pacemakers. Electric and magnetic field strengths associated with the proposed transmission lines are presented in Section 5.18 The following discussion addresses the potential effects of electric and magnetic fields on human health.

Exposure to both electric and magnetic fields (EMFs) occurs whenever electric current flows. Concern about health effects from EMFs arose in 1979 when researchers calculated a weak statistical link between proximity to power lines and childhood leukemia. This study was based on wire-code classifications for residences and the incidence of leukemia. Since then, other researchers have investigated this potential association and other types of potential human health effects from EMFs. In 1991, Congress asked the National Academy of Sciences (NAS) to review the research literature on the effects of EMF exposure and determine whether sufficient scientific basis existed to assess health risks from such exposure. In response, the National Research Council (NRC) convened the Committee on the Possible Effects of Electromagnetic Fields on Biologic Systems. After examining more than 500 studies spanning 17 years of research, the committee concluded in an October 1996 report that there is no conclusive evidence that EMFs play a role in the development of cancer, reproductive and developmental abnormalities, or learning and behavioral problems (NRC, 1996).

On June 27, 1998, a 28-member advisory panel sponsored by the National Institute of Environmental Health Science (NIEHS), part of the National Institute of Health, voted 19 to 9 to label EMFs a "possible human carcinogen," which kept open funding for continuing government studies. On May 4, 1999, NIEHS issued a report entitled *Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields* (NIEHS, 1999). This report found that the evidence is "weak" that electric and magnetic fields cause cancer. The report concludes: "The NIEHS believes that the probability that EMF exposure is truly a health

hazard is currently small. The weak epidemiological associations and lack of any laboratory support for these associations provide only marginal scientific support that exposure to this agent is causing any degree of harm." While the report says EMF exposure "cannot be recognized as entirely safe," the report goes on to say "… the conclusion of the report is insufficient to warrant aggressive regulatory action." Because virtually everyone in the United States is exposed to EMF, the report recommends that "… passive regulatory action is warranted such as continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures," but that cancer and non-cancer health outcomes do not provide "… sufficient evidence of a risk to warrant current concern."

With respect to the ESPR facility, the expected maximum electric field strength at the edge of the proposed transmission line right of way is estimated at 0.75 kilovolts per meter (kV/m). Magnetic field strengths at the edge of the right of way are expected to peak at 19.95 milliGauss (mG) with a worst-case projection of 40.96 mG.

The electric field strengths for the proposed transmission lines present no risk of primary electric shock (those that can result in direct physiological harm) as discussed in Section 5.18 Secondary shocks (those that could cause an involuntary movement but no direct physiological harm) are possible, however such occurrences are anticipated to be very infrequent and will most likely be barely perceptible. Given this assessment, and the lack of sufficient evidence of health hazards to exposed humans, there is no anticipated impact on public health. The magnetic fields are potentially of greater concern because, unlike the companion electric field, magnetic fields can penetrate most objects, causing individuals in buildings to be exposed. The estimated magnetic fields associated with the proposed project are similar in intensity to those from transmission lines currently in service of the same voltage class and current-carrying capacity. Although the public health significance of project-related exposures cannot be characterized with certainty, the current evidence in the scientific literature suggests that any such risks, if any, would be small. Given the distance of the proposed transmission lines to residences and the rapid decrease of field strength with distance (field strengths drop with the square of distance), any long-term exposures at residences are estimated to be within normal background levels, which are approximately 1 mG or less.

5.16.2.9 Cumulative Impacts

When toxic air pollutants are emitted from multiple sources within a given area, the cumulative or additive impacts could potentially lead to significant health impacts within the population, even when such pollutants are emitted at insignificant levels and are localized within relatively short distances from the source (Odoemelam, 1999). Therefore, potentially

significant cumulative impacts are only expected when new major sources are located adjacent to each other.

Projects identified for consideration in the cumulative assessment included those: 1) where an application has been submitted to local jurisdictions for required approvals and permits: and/or, 2) that have been previously approved and may be implemented in the near future.

Information concerning potential future projects was obtained by contacting the City of El Segundo Community Development Department, Manhattan Beach Planning Department, City of Torrance Planning Department, City of Los Angeles Planning Department, City of Hermosa Beach Planning Department, City of Hawthorne Planning Department, and the City of Redondo Beach Planning Department. In addition, the Los Angeles International Airport (LAX) Master Plan EIR/EIS was reviewed for projects related to the expansion of the airport and for other relevant projects in the City of Los Angeles. These projects are residential and commercial developments. None of these projects, independently or cumulatively, are expected to emit significant TAC emissions.

5.16.3 Stipulated Conditions

No stipulated conditions apply to the Public Health section.

5.16.4 Mitigation Measures

The proposed project has been designed to minimize potential public health risks, including use of natural gas as fuel, and incorporation of appropriate emission control measures. Based on the results of the air toxics risk assessment, no additional mitigation measures are required to reduce risks, since all risk estimates are well within acceptable levels. Because electric and magnetic field strengths are expected to be within normal background levels, no additional mitigation measures are required.

5.16.5 Applicable Laws, Ordinances, Regulations, and Standards

Applicable LORS are summarized in Table 5.16-6.

TABLE 5.16-6

LORS APPLICABLE TO PUBLIC HEALTH

LORS	Applicability	Conformance (section)
Federal		
Occupational Health & Safety Act of 1970 (OSHA), 29 USC 651 *et seq.*; and 29 CFR 1926 *et seq*.	Meet employee health and safety standards for employer-employee communications, electrical operations, and chemical exposures.	5.16.2 5.16.5.1
Department of Labor, Safety and Health Regulations for Construction Promulgated Under Section 333 of the Contract Work Hours and Safety Standards Act, 40 USC 327 *et seq*.	Meet employee health and safety standards for construction activities. Requirements addressed by CCR Title 8, General Construction Safety Orders.	5.16.2 5.16.5.1
Uniform Fire Code, Article 80,79,4.	Meet requirements for the storage and handling of hazardous materials (Article 80), flammable and combustible liquids (Article 79), and for obtaining permits (Article 4).	5.16.2 5.16.5.1
National Fire Protection Association (See Table 7.4-1 for list of standards)	Meet standards necessary to establish a reasonable level of safety and property protection from the hazards created by fire and explosion.	5.16.2 5.16.5.1
State		
California Code of Regulations, Title 8.	Meet requirements for a safe and hazard-free working environment. Categories of requirements include General Industry Safety Orders, General Construction Safety Orders, Electrical Safety Orders.	5.16.2 5.16.5.2
California Clean Air Act, California Health & Safety Code 39650 *et seq*.	Meet requirements for Best Available Control Technology to minimize exposure limits to toxic air pollutants and possible risk assessments for carcinogen pollutants.	5.16.2 5.16.5.2
California Public Resources Code §25523(a); 20 CCR §1752, 1752.5, 23002309, and Division 2, Chapter 5, Article 1, Appendix B, Part (I), California energy Commission (CEC)	Provides Health Risk assessment guidelines to evaluate health impacts	5.16.2 5.16.5.2

TABLE 5.16-6
(CONTINUED)

LORS	Applicability	Conformance (section)
California Health & Safety Code, Part 6, Section 44300 *et seq*.	Estimate emissions for listed air toxic pollutants and submit inventory to air district for major sources of criteria air pollutants. Follow-up from air district may require a health risk assessment.	5.16.2 5.16.5.2
California Health & Safety Code §25500 to 25541; 19 CCR §§2720-2734.		5.16.2 5.16.5.2
Local		
City of El Segundo Zoning Ordinance	Provide safety setbacks as required by El Segundo Fire Department.	5.16.2 5.16.5.3
City of El Segundo Municipal Code Title 6, Chapter 6.21	Provide implementation of the hazardous material inventory and emergency response program.	5.16.2 5.16.5.3

5.16.5.1 Federal

Occupational Safety and Health Act of 1970 (OSHA), 29 USC §651 *et seq*.: 29 CFR §§1910 *et seq*: and 29 CFR §1926 *et seq*. The authority establishes occupational safety and health standards (§1910) [i.e., permissible exposure limits for toxic air contaminants (§1910.100), electrical protective equipment requirements (§1910.137), electrical workers safety standards (§1910.269), and the requirement that information concerning the hazards associated with the use of all chemicals is transmitted from employers to employees (§1910.1200)] and safety and health regulations for construction (§1926). Subpart I of §1910 and Subpart E of §1926 address personal protective equipment. Under the Operational Status Agreement of October 5, 1989 between the Federal Occupational Safety and Health Administration (OSHA) and the California Department of Industrial Relations, Division of Occupational Safety and Health (DOSH), the state resumed full enforcement responsibility for most of the relevant federal standards and regulations, (55 Fed. Reg. 18610 (July 12, 1990); 29 CFR §1952.172). Federal OSHA has retained concurrent enforcement jurisdiction with respect to certain federal standards including standards relating to hazardous materials at 29 CFR §1910.120 (*Id*.).

The administering agencies for the above authority are the Fed-OSHA and the DOSH or (Cal-OSHA).

Department of Labor, Safety and Health Regulations for Construction Promulgated Under §333 of the Contract Work Hours and Safety Standards Act, 40 USC 327 *et seq*. The code establishes safety and health regulations for construction. The requirements for this regulation are all addressed in Title 8 California Code of Regulations, Chapter 4, Subchapter 4, General Construction Safety Orders.

The administering agencies for the above authority are Fed-OSHA and DOSH (or Cal-OSHA).

Uniform Fire Code, Article 80. The article provisions for storage and handling of hazardous materials. Considerable overlap exists between this code and Chapter 6.95 of the Health and Safety Code. However, the fire code does contain independent provisions regarding fire protection and neutralization systems for emergency venting (§80.303, D, Compressed Gasses). Other articles that may be applicable include Article 4, Permits, and Article 79, Flammable and Combustible Liquids.

The administering agency for the above authority is the City of El Segundo Fire Department.

National Fire Protection Association. Prescribes minimum requirements necessary to establish a reasonable level of fire safety and property protection from the hazards created by fire and explosion. The standards apply to the manufacture, testing and maintenance of the equipment.

The administering agency for the above authority is the City of El Segundo Fire Department.

Compliance.

ESGS, as an operating power plant complies with all federal LORS listed above. Construction and operation of the new facility will continue this compliance by updating the appropriate plans and policies as well as by measures described in Sections 5.16.1 and 5.16.2. In addition, the Air Quality section (5.2), the Hazardous Materials Handling section (5.15), and the Worker Safety section (5.17) discuss many of these LORS and their compliance as well.

5.16.5.2 State

8 CCR. These authorities prescribe general occupational safety and health regulations and standards in addition to the construction and industrial safety regulations, standards, and orders

identified within the engineering categories addressed in Section 5.17, Worker Safety, of this AFC. Applicable sections of 8 CCR, Chapter 4, Subchapter 7 and 24 CCR, will be complied with. Specifically, 8 CCR §§1509 (Construction) and 3203 (General Industry) make numerous changes designed to redirect the emphasis of Cal-OSHA towards ensuring that employers have effective work site Illness and Injury Prevention Programs (IIPPs), to focus Cal-OSHA discretionary inspections in the highest hazard industries as determined by worker compensation and other occupational injury data, and to limit the number of follow-up inspections which Cal-OSHA must perform.

The administering agency for the above authority is Cal-OHSA.

California Health and Safety Code §25500 to 25541; 19 CCR §§2720-2734. This code establishes inventory, reporting, business, and area planning requirements with respect to hazardous and acutely hazardous materials in accordance with the federal Emergency Planning and Community Right-to-Know Act of 1986. Generally, it requires that any business that handles a hazardous material or mixture, in amounts greater than specified thresholds, mush establish and implement a business plan for emergency responses to a release or threatened release of the hazardous material or mixture.

The administering agencies for the above authority are the Office of Emergency Services and the City of El Segundo Fire Department.

California Clean Air Act, California Health and Safety Code §39650 *et seq*. This code mandates the California Air Resources Board (CARB) and the State to establish safe exposure limits for toxic air pollutants and identify pertinent best available control technologies (BACT). It requires that the new source review rule for each air pollution district include regulations that require new or modified procedures for controlling the emission of toxic air contaminants. Pursuant to this code, CARB has developed cancer potency estimates for several carcinogenic pollutants to use in assessing the carcinogenic risk associated with exposure to these pollutants.

The administering agencies for the above authority are the CARB and the SCAQMD.

California Health and Safety Code, Part 6, §44300 *et seq*. The law requires that facilities which emit large quantities of a criteria pollutant and which emit any quantity of a toxic contaminant provide the local Air Quality Management District an inventory of toxic emissions. Such facilities may also be required to prepare a quantitative health risk assessment.

The administering agencies for the above authority are the CARB and the SCAQMD.

Compliance.

ESGS, as an operating power plant complies with all state LORS listed above. Construction and operation of the new facility will continue this compliance by updating the appropriate plans and policies as well as by measures described in 5.16.1 and 5.16.2. In addition, the Air Quality section (5.2), the Hazardous Materials Handling section (5.15), and the Worker Safety section (5.17) discuss many of these LORS and their compliance as well.

5.16.5.3 Local

City of El Segundo Municipal Code Title 6 Chapter 6.21. This section pertains to the implementation of the hazardous material inventory and emergency response program.

Compliance.

ESGS, as an operating power plant complies with all local LORS listed above. Construction and operation of the new facility will continue this compliance by updating the appropriate plans and policies as well as by measures described in 5.16.1 and 5.16.2. In addition, the Air Quality section (5.2), the Hazardous Materials Handling section (5.15), and the Worker Safety section (5.17) discuss many of these LORS and their compliance as well.

5.16.5.4 Applicable Permits

There are no applicable permits required related to public health. However, the proposed project would be reviewed by the El Segundo Unified School District and assessed a school impact fee. Additionally, development impact fees may be assessed by the City of El Segundo once the project development plans are submitted. Table 5.16-7 summarizes the permitting requirements.

TABLE 5.16-7

APPLICABLE PERMITS

Jurisdiction	Potential Permit Requirements
Federal	None required (see Section 5.2)
State	None required (see Section 5.2)
Local	None required

5.16.5.5 Agencies and Agency Contacts

Agencies with jurisdiction to issue applicable permits and/or enforce LORS related to public health are shown in Table 5.16-8.

TABLE 5.16-8

AGENCY CONTACTS

Agency	Contact	Title	Telephone
City of El Segundo Fire Department	Robert Nolan	Principal Fire Prevention Specialist	310-414-0929
City of El Segundo Fire Department	Steve Tsumura, CIH	Environmental Safety Manager	310-414-0929

5.16.5.6 References

California Air Pollution Control Officers Association. 1993. CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993.

California Air Resources Board. 1999. Guidance for Power Plant Siting and Best Available Control Technology. Stationary Source Division. June 1999.

1996. California Air Toxic Emission Factor database. Version 1.2. April 11, 1996.

California Environmental Protection Agency . 2000a. The Determination of Acute Reference Exposure Levels for Airborne Toxicants. Office of Environmental Health Hazard Assessment. February 2000.

2000b. The Determination of Chronic Reference Exposure Levels for Airborne Toxicants. Office of Environmental Health Hazard Assessment. August 2000.

1999. Technical Support Document for Describing Available Cancer Potency Factors. Office of Environmental Health Hazard Assessment. December, 1999 (updated December, 1999).

National Research Council. 1996. Possible Effects of Exposure to Residential Electric and Magnetic Fields Committee on the Possible Effects of Electromagnetic Fields on Biologic Systems. National Academy of Sciences. Oct. 1996.

National Institute of Environmental Health Sciences. 1999. Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields. National Institute of Health. May 4, 1999.

Adequacy Issue: Adequate ____ Inadequate ____

DATA ADEQUACY WORKSHEET

Revision No. ____ Date ____

Technical Area: **Public Health** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.	Sections 5.16.1, 5.16.2, 5.16.2.1, 5.16.2.2, 516.2.9, 5.16.3, and 5.16.4, Figure 5.16-1 Figure 5.16-2		
Appendix B (g) (9) (A)	A list of all toxic substances emitted by the project under normal operating conditions, which may cause an adverse public health impact as a result of acute, chronic, or sub-chronic exposure and to which members of the public may be exposed. This list should include, at a minimum, any pollutants emitted by the project that are listed pursuant to Health and Safety Code § 25249.8.	Sections 5.16.2.2, 5.16.2.2.1, 5.16.2.2.2, and 5.16.2.2.3 Table 5.16-1		
Appendix B (g) (9) (B)	A protocol describing the analysis which the applicant will conduct to determine the extent of potential public exposure to substances identified in subsection (g)(9)(A) resulting from normal facility operation. The analysis itself can be submitted after the AFC is complete.	Sections 5.16.2.2.3, 5.16.2.3.1, 5.16.2.3.2, .5.16.2.4, 5.16.2.4.1, 5.16.2.4.2, 5.16.2.4.3, and 5.16.2.4.4		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. ____ Date ____

Technical Area: **Public Health** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (9) (C)	A map at a scale of 1:24,000, showing all terrain areas exceeding the elevation of the stack within a 10 mile radius of the facility.	Figure 5.16-1		
Appendix B (g) (9) (D)	A map at a scale of 1:24,000, showing the distribution of population and sensitive receptors within the area exposed to the substances identified in subsection (g)(9)(A).	Figure 5.16-2		
Appendix B (h) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, and permits applicable to the proposed project, and a discussion of the applicability of each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed;	Section 5.16.5 Table 5.16-6		
Appendix B (h) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	Section 5.16.5.5 Table 15.16-7		

Adequacy Issue: Adequate ____ Inadequate ____

DATA ADEQUACY WORKSHEET

Revision No. ____ Date ____

Technical Area: **Public Health** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (h) (2)	A discussion of the conformity of the project with the requirements listed in subsection (h)(1)(A).	Section 5.16.1, 5.16.2, 5.16.3		
Appendix B (h) (3)	The name, title, phone number, and address, if known, of an official within each agency who will serve as a contact person for the agency.	Section 5.16.5.3 Table 5.16-8		
Appendix B (h) (4)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	Table 5.16-8 Section 5.16.5.3		